

VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a major, industrial permit. This permit action will reclassify the facility from a major facility to a minor facility. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260 et seq. The discharge results from treated wastewater and non-contact cooling water from a menhaden fish processing plant. This permit action consists of updating special conditions, re-evaluating monitoring and toxicity testing, establishing limitations in accordance with TMDL wasteload allocations, and updating the permit to reflect process changes at the facility. SIC Code: 2077

1. **Facility Name:** Omega Protein, Inc.- Reedville
Mailing Address: P.O. Box 175
Reedville, VA 22539

Location: 610 Menhaden Road
Reedville, VA 22539
Northumberland County
2. **Permit Number:** VA0003867
Existing Permit Expiration Date: December 1, 2010
3. **Owner Contact Name:** Mr. William E. Purcell
Title: Environmental Manager
Permit Owner: Omega Protein, Inc.
Telephone No: 804-453-4211
4. **Application Complete Date:** March 9, 2011
Permit Drafted By: Jaime Bauer, Piedmont Regional Office
Reviewed By: Drew Hammond Date: February 22, 2011
Reviewed By: Ray Jenkins Date: February 24, 2011
Reviewed By: Curt Linderman Date: February 18, 2011
Public Notice Dates: **First Publication Date:**
Public Comment Period: **From:** **Second Publication Date:**
Newspaper: **To:**
5. **Receiving Stream Name:** Cockrell Creek (Outfall 995)
Unnamed Tributary to Cockrell Creek (Outfall 002)
Basin: Chesapeake Bay, Atlantic Ocean, and Small Coastal Basins
Sub-basin: N/A
Section: 2
Class: II
Special Standards: a
River Mile: Outfall 002: 7-XAN000.14 Outfall 995: 7-COC001.0
7-Day, 10-Year Low Flows: N/A: Saltwater
Tidal? Yes
On 303(d) List? Yes

See Flow Frequency Memo dated January 28, 2011 ([Attachment 1](#))

6. **Operator License Requirements** (9 VAC 25-790-300): Class III
7. **Reliability Class** (9 VAC 25-790-70): Not Applicable – No authorized sewage discharge.
8. **Permit Characterization:**

☒ Private
 ☐ Federal
 ☐ State
 ☐ POTW
☐ Possible Interstate Effect
 ☐ Interim Limits in Other Document (attach to FS)

9. **Discharge Description**

Outfall Number	Discharge Source	Treatment	Daily Flow*
002	Evaporator and Dryer Condensate, Boiler Blowdown (Includes 1-4 gpm wastewater from the fish oil processing facility)	Ammonia Stripping	0.178 MGD long term average 0.265 MGD maximum 30 day value 0.320 MGD maximum daily value
995	Non-contact Cooling Water	None	2.377 MGD long term average 3.188 MGD maximum 30 day value 4.212 MGD maximum daily value
-	Refrigeration Water (from Fishing Vessels)	None	Unknown; Subject to criteria that the discharge be made while the ships are underway at a rate such that the discharge is not visible.

*Flows as reported on Form 2C received on January 11, 2011.

See [Attachment 2](#) for facility operations diagram and water usage.

Omega Protein, formerly Zapata Protein, Inc., processes menhaden by cooking the fish, pressing and separating the oil and solids, and evaporating the water to leave fish meal and oil. The typical fishing season lasts for about 200 days, beginning in May and ceasing approximately the first week of December. Omega currently owns and operates ten fishing vessels capable of carrying 1.2 to 2.2 million fish each. While at sea, the fishing vessels take on seawater that is chilled and used for refrigeration of the catch to keep fish cold in the ship holds until they are offloaded at the dock. Refrigeration water is defined as seawater taken on by the fishing vessel that is run through the vessel's chillers to lower the water temperature to approximately 36°F. The water is circulated between the fish holds where the catch is stored and the chillers to maintain the fish as fresh as possible for processing. Prior to offloading the catch, most of the refrigeration water is disposed east of a line between Great Wicomico River Light (formerly known as Fleeton Point Light) and Green Can Buoy No. 3. A small residual of refrigeration water is retained within the mass of fish.

Once at the dock, the ships offload the catch by hydraulic transfer. Residual refrigeration water in the fish holds, fresh creek water used to prime the fish pumps, and any liquids given up by the fish during the transfer process is considered bail water. The bail water is processed through the plant with the catch. The facility discharges bail water in the Atlantic Ocean for disposal. The discharge of fish waste is allowed in international waters under The Marine Protection, Research, and Sanctuaries Act (Title 33 Chapter 27 Subpart I Section 1412(d)). Prior to the 2012 fishing season, the permittee intends to install a waste heat evaporator system for handling of all bail water. This type of evaporator is used at other facilities owned by the permittee. The evaporator produces two condensate streams: clean condensate and dirty condensate. The dirty condensate stream is condensate from the Dupps Dryers that is providing the waste heat for the evaporative process. This dirty condensate is currently treated in the treatment train so there is no expected increase in load to the treatment train. The clean condensate will be used as boiler feed water.

As fish are processed, wastewater from the fish cooker, identified as stickwater, is pressed and centrifuged to a consistency of 10% solids. The stickwater is further evaporated to a condensate consisting of approximately 50 percent solids. This includes wastewater generated from the fish oil processing facility at the plant. Currently, condensate is treated through ammonia strippers, two aerated ponds, and is sent to a dissolved air floatation (DAF) unit and a UV disinfection unit. Wastewater exiting the disinfection unit is then discharged from Outfall 002 into an unnamed tributary of Cockrell Creek. A portion of the treated water is reused within the plant as cooling water, vacuum pump seal water, and for plant wash down. Reuse of some of the treated water has resulted in a decrease in flows from Outfall 002.

With this permit reissuance, the permittee is proposing to remove the aerated ponds, DAF, and disinfection units from the treatment train, under normal operations. Wastewater leaving the ammonia stripper will be piped directly to Outfall 002, which will remain in the same location. Data submitted by the permittee suggests that ammonia concentrations discharging from the aerated ponds are higher than concentrations entering the ponds from the ammonia strippers, especially during the colder operation months when nitrification is minimal or ceases. Disinfection treatment was required due to the presence of bacteria found in the effluent at Outfall 002. The permittee contends that the presence of bacteria at Outfall 002 is due to wildlife that uses the aerated ponds. The wastewater leaving the ammonia strippers will be fully contained upon leaving the ammonia strippers within piping until discharging at Outfall 002. If wastewater is no longer directed to the ponds, then disinfection is anticipated to no longer be necessary. The DAF was installed for solids separation to maximize the efficiency of UV disinfection. Since disinfection is no longer believed necessary, then the DAF unit will also become unnecessary. The proposed changes of the Outfall 002 treatment train and re-piping are not considered an upgrade under the Regulation for Nutrient Enriched Waters and Discharges within the Chesapeake Bay Watershed (9 VAC 25-40 et.seq.) 9 VAC 25-40-70 states that technology based effluent concentration limitations are to be added to the individual permit for any facility that has "installed technology for the control of nitrogen and phosphorus whether by new construction, expansion, or upgrade." While the proposed changes at Outfall 002 are expected to improve the water quality of the process wastewater by decreasing ammonia concentrations, the permittee is not proposing any activities of new construction, expansion, or upgrading.

The permittee is requesting that the ponds be allowed to stay in place to be used in the case of an emergency for storage. In an emergency situation, process wastewater would be stored in the ponds. Upon resuming plant operations, any wastewater stored in the ponds would flow to the DAF to remove algae and then flow to the ammonia strippers and then flow to the UV unit for disinfection of bacteria introduced from wildlife while water was in storage. Closure of the aerated ponds, DAF, and disinfection units as normal modes of treatment will be subject to the DEQ review and approval in accordance with Part I.B.12 of the permit. The Outfall 002 effluent limitations will be effective for all discharges under normal and emergency operations.

Also discharged from Outfall 002 is a small amount of boiler blowdown created from the operation of cookers and steam dryers.

Outfall 995 is the combined discharge of non-contact cooling water used by the evaporators in the processing of fish condensate. This outfall is the combination of discharges from outfalls previously designated 004 and 005.

Also of note, the boat engines require the continuous cycling of external cooling water and a discharge of this cooling water may be seen at the dock if the engines are running while the vessels wait to unload the catch.

Removed with this permit reissuance is the authorization of discharge from Outfalls 001 and 003. In previous years, the permittee discharged contact cooling water at Outfall 001 generated from the operation of scrubbers used for air pollution control. At the end of the 2009 fishing season, the wet scrubbing system was removed; airless dryers, which do not generate wastewater, were installed for the process. Previous permits authorized the discharge of evaporation condensate, on an emergency basis, into a quadrant of the Chesapeake Bay designated as Outfall 003. This method of disposal has not been used in over 20 years is no longer necessary for the operations of the facility.

10. **Sludge Use or Disposal:** Not Applicable
11. **Discharge Location Description:** This facility discharges to Cockrell Creek and an unnamed tributary to Cockrell Creek, both of which are tributaries of the Chesapeake Bay.
Name of USGS topo map: 145D Reedville (See [Attachment 3](#))
12. **Material Storage:** Several chemicals are stored on-site but have limited potential of coming in contact with surface waters. These chemicals include:

- Marine Paints for touch up work on the menhaden fishing vessels. Brushwork only, no spraying, is done at this facility.
- There are 9 active Above Ground Storage Tanks on the site that contain petroleum ranging in capacity from 1,000 gallons to 508,000 gallons. The tanks are located inside bermed areas in case of leaks. The facility is subject to the Oil Discharge Contingency Plans (ODCP) under the petroleum regulations because the total capacity of the storage tanks is greater than 25,000 gallons. Tanks storing fish oil are not regulated under the petroleum program but are also stored within bermed areas to contain any product in case of leaks. A description of those tanks storing fish oil are as follows:

Tank No.	Description	Gallons
01	Fish Oil Production	15,645
02	Fish Oil Production	24,000
03	Fish Oil Production	24,000
04	Fish Oil Production	20,000
05	Fish Oil	132,193
06	Fish Oil	58,752
07	Fish Oil	508,144
08	Fish Oil	308,378
09	Fish Oil	293,760
10	Fish Oil	93,861
24	Fish Oil	308,378
27	Fish Oil	508,144
47	Fish Oil	308,378
76	Fish Oil	508,144
F11	Fish Oil	17,626
F12	Fish Oil	23,500

13. Ambient Water Quality Information:

The Cockrell Creek water body encompasses the area southeast and east of Lilian on Rte. 360 to the confluence with Ingram Bay and Chesapeake Bay, including Cockrell Creek and numerous unnamed coves. This water body is classified as water quality limited. The DEQ maintains a water quality monitoring station located on Cockrell Creek approximately 0.6 miles upstream of the facility at the end of Main Street in Reedville (7-COC001.61). Sampling data for this station may be seen in [Attachment 4](#). Water Quality Assessments indicate that the segments of Cockrell Creek to which the facility discharges is impaired for submerged aquatic vegetation and bacteria. Additionally, the Virginia Department of Health has issued a Fish Consumption Advisory (for PCBs) and Shellfish Condemnation for the segments. See item 26 of this fact sheet for additional information regarding Water Quality Assessments, Designated Uses, and TMDL applicability.

14. Antidegradation Review & Comments: Tier 1 ☒ Tier 2 ☐ Tier 3 ☐

The State Water Control Board's Water Quality Standards include an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters. The limitations in this permit were developed in accordance with Section 303(d)(4) of the Clean Water Act. Therefore, antidegradation restrictions do not apply.

Cockrell Creek is a tier 1 stream, considered fully allocated, based on the 1976 VIMS model ([Attachment 5](#)) and supporting documentation. The model was performed to model the creek for the menhaden plant limitations and showed a wasteload allocation of 5000 lb/day BOD₅. This wasteload allocation was split between the two menhaden plants on the creek at the time, and an amount (100 lb/day) was delegated to the Reedville WWTP, located upstream of the Omega facility. Additionally, Cockrell Creek is considered a tier 1 stream because it is on the 303(d) list for impaired waters. See item 26 of this fact sheet for additional information on impairments.

15. **Site Inspection:** **Date:** November 5, 2009 **Performed by** M. Dare (See [Attachment 6](#))

16. **Effluent Screening & Limitation Development**

The reasonable potential analysis is performed by calculating the parameter wasteload allocations based on ambient water quality data for the receiving stream, mixing characteristics between the receiving stream and effluent, and effluent characteristics. This information is entered into the agency established MSTRANTI WLA Spreadsheet to calculate acute, chronic, and human health wasteload allocations. The WLAs are entered into the STATS.exe statistical software application along with effluent monitoring data collected by the permittee as required by the permit application or previous permit to determine the need for permit limitations and, if necessary, calculate the limitations that are protective of water quality.

As part of the reissuance permit application, the permittee was required to perform water quality criteria monitoring to collect data for use in establishing water quality based permit limitations. The permittee provided data on only a limited number of parameters. Due to the seasonal nature of the facility operations, the remaining sampling could not be performed in time to be used for the permit reissuance. As a condition of this permit reissuance, the permittee will be required to perform complete water quality criteria monitoring and if the results demonstrate the potential for the discharges from this facility to impact water quality, the permit will be reopened and modified to establish the proper limitations to ensure water quality is protected. Additionally, complete water quality criteria monitoring of Outfall 002 will provide an accurate characterization of the effluent following the proposed operational changes of evaporator condensate treatment.

That data that was submitted with the application along with monitoring reports submitted to the agency during the term of the 2005 permit were used to evaluate for reasonable potential of the facility to impact water quality at the receiving stream. Documentation of the reasonable potential analysis and permit limitation development for Outfall 002 is included in [Attachment 7](#). The reasonable potential analysis and supporting documentation for Outfall 995 is available in [Attachment 8](#). For the analysis, receiving stream data was obtained based on ambient water quality data collected from station 7-COC001.61 ([Attachment 4](#)) by the DEQ from 1993 to 2010 and is believed to represent the current ambient water quality of Cockrell Creek.

Outfall 002

BOD₅, TSS, Oil & Grease

The EPA proposed Effluent Limitations Guidelines for Fish Meal Processing (40 CFR Part 408.150 – Subpart O) however the regulations were never promulgated. Agency staff used the guideline to calculate permit limits based on technology and compare those suggested limits to water quality based calculated limitations. See [Attachment 7](#) for the proposed federal regulation 40 CFR 408.150 and evaluation of limitations.

Ammonia

The reasonable potential analysis included in [Attachment 7](#) indicates the need for an ammonia limitation on the discharge of wastewater from Outfall 002 of 32.6 mg/L (average) and 40.2 mg/L (maximum).

Total Phosphorous

The limitation of 2.0 mg/L Total Phosphorous is applied based on Nutrient Enriched Waters regulations and policy. The facility was previous applicable to the NEW-20 standard of the Virginia Water Quality Standards which has since been repealed and replaced with the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed. In accordance with the anti-backsliding policy and GM07-2008, the limitations are being carried forward with this permit action. The weekly loading limitation is calculated based on a maximum 30 day flow of 0.265 MGD $[2.0 \text{ mg/L} * 0.265 \text{ MGD} * 8.34 = (4.4202 \text{ lb/d}) / 2.2 = 2.0 \text{ kg/d}]$.

DEQ Toxics Management Policy

See [Attachment 9](#) for Whole Effluent Toxicity data analysis and limitation calculation.

Outfall 995:

Copper and Silver

Limitations for copper and silver were applied in the previous permit under an established schedule of compliance. All data submitted by the permittee after the final limitation effective date for copper and silver was reported as below quantification levels and are considered absent for the purpose of this evaluation. However, in accordance with the agency anti-backsliding policy, the permit will retain the limitation of 19 ug/L total recoverable copper and 4.0 ug/L total recoverable silver. Previous reasonable potential evaluations for copper and silver showing how the limitations were calculated are included in [Attachment 8](#).

Zinc

A permit limitation for zinc has not been previously established. Since the monitoring data from the last 5 years does not demonstrate a reasonable potential for zinc to impact water quality, monitoring for zinc is being eliminated from the permit.

Temperature:

The previous permit limitation for temperature of 45°C was evaluated based on chronic conditions to determine if the limitation was appropriate to protect against the rise above natural temperature of more than 3°C as listed in 9 VAC 25-260-60 of the Water Quality Standards. The agency default of 50:1 mixing in tidal waters was used. Additionally, the evaluation used the minimum ambient stream temperature for Cockrell Creek so that the most conservative evaluation was performed. The evaluation is as follows:

$$[(45^{\circ}) \cdot (1\text{MGD}) + (0.49^{\circ}\text{C}) \cdot (49\text{MGD})] / 50\text{MGD} = 1.38^{\circ}\text{C} \text{ which is the Mixed Temperature}$$

$$\text{Delta Temperature} = 1.38^{\circ}\text{C} - 0.49^{\circ}\text{C} = 0.89^{\circ}\text{C}$$

The permit limitation of 45°C for temperature is protective of the rise above natural temperature standard. The limitation is being carried forward with this permit reissuance.

Limitations Applicable to Outfalls 002 and 995

pH: 9 VAC 25-260-50, Class II Waters

Fecal Coliform and Enterococci: Limitations for Fecal Coliform and Enterococci are being applied to Outfalls 002 and 995 due to the wasteload allocations in the Cockrell Creek Bacteria TMDL. The wasteload allocations were based on bacterial concentration in 9 VAC 25-260-160 and 170 of the Virginia Water Quality Standards; therefore, the concentrations are being placed in the permit to demonstrate conformance with water quality management plans. The VDH – Department of Shellfish Sanitation has not designated a shellfish prohibition area surrounding Omega, and has indicated that they will not likely do so. As such, effluent from Omega must meet shellfish water quality standards at the end of pipe.

Outfall 002 Evaporator and Dryer Condensate, Boiler Blowdown Monitoring and Limitations

Parameter	Monitoring Frequency	Limitation	Basis
Flow (MGD)	Continuous	NL	Monitoring Only
Temperature	2 per Week	NL	Monitoring Only
pH	2 per Week	6.0 – 9.0 SU	Water Quality Standards
BOD ₅	2 per Month	470 kg/d monthly average 840 kg/d maximum	Best Engineering Judgment

Parameter	Monitoring Frequency	Limitation	Basis
TSS	2 per Month	160 kg/d monthly average 410 kg/d maximum	Best Engineering Judgment
Oil and Grease	2 per Month	25 kg/d monthly average 46 kg/d maximum	Best Engineering Judgment
Ammonia	2 per Month	32.6 mg/L monthly average 40.2 mg/L maximum	Water Quality Standards
Total Phosphorous	1 per Week	2.0 mg/L, monthly average 2.0 kg/d, weekly average	Nutrient Policy for Nutrient Enriched Waters (9 VAC 25-40-10 et seq.)
Fecal Coliform	1 per Week between 10 a.m. and 4p.m.	14 (N/100 mL) Geometric Mean	Water Quality Standards
Enterococci	1 per Week between 10 a.m. and 4p.m.	35 (N/100 mL) Geometric Mean	Water Quality Standards
Whole Effluent Toxicity	1 per Quarter	14 TU _a	DEQ Toxic Management Policy

Outfall 995 Non-Contact Cooling Water Monitoring and Limitations

Parameter	Frequency	Limitation	Basis
Flow (MGD)	Continuous	NL	Monitoring Only
pH	5 per Week	6.0 – 9.0 SU	Water Quality Standards
Temperature	1per Day	45°C maximum	BEJ
Copper, Total Recoverable	1 per Month	19 ug/L monthly average 19 ug/L maximum	Water Quality Standards
Silver, Total Recoverable	1 per Month	4.0 ug/L monthly average 4.0 ug/L maximum	Water Quality Standards
Fecal Coliform	1 per Week Between 10am and 4 pm	14 (N/100 mL) Geometric Mean	Water Quality Standards
Enterococci	1 per Week Between 10am and 4 pm	35 (N/100 mL) Geometric Mean	Water Quality Standards

17. Ground Water Monitoring Data Evaluation ([Attachment 10](#))

18. Antibacksliding Statement: All limitations in the proposed permit are the same or more stringent than the limitations in the 2005 permit.

19. Compliance Schedules: 9VAC 25-31-250 allows for schedules of compliance, when appropriate, which will lead to compliance with the Clean Water Act, the State Water Control Law and regulations promulgated under allows for them. Bacterial impairments on Cockrell Creek were addressed in a TMDL approved by the EPA on 12/8/2008 and by the SWCB on 4/28/2009. The TMDL established wasteload allocation for Fecal Coliform and Enterococci at Outfalls 002 and 995. Previously, there have been no bacterial limitations on the discharge from Outfall 995. Effluent documentation has indicated the presence of these bacteria in concentrations greater than the new limitations; therefore, it is appropriate to establish a schedule of compliance for the Fecal Coliform and Enterococci limitations at Outfall 995

No compliance schedule is being established for the revised bacterial or ammonia limitations at Outfall 002. Even though the revised limitations are more stringent than the limitations in the 2005 permit, DMR data demonstrates that the facility will be able to meet the revised limitations for Fecal Coliform, Enterococci, and ammonia on Outfall 002.

20. Special Conditions

Special Condition B.1 - Compliance Reporting

Rationale: Authorized by VPDES Permit Regulation, 9VAC 25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values. QLs for total recoverable copper and silver are based on the Outfall 995 Site Specific Target Values calculated based on acute and chronic wasteload allocations on the MSTRANTI spreadsheet.

Special Condition B.2 – Discharge and Monitoring of Refrigeration Water

Rationale: State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. Included to ensure discharges meet water quality standards. Additional monitoring of refrigeration water has been included to characterize the discharge.

Special Condition B.3 – Notification Levels

Rationale: Required by VPDES Permit Regulation, 9VAC25-31-200 A for all manufacturing, commercial, mining, and silvicultural dischargers.

Special Condition B.4 – Materials Handling/Storage

Rationale: 9VAC25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by the permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

Special Condition B.5 – Operation and Maintenance Manual Requirement

Rationale: Required by the Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9VAC25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O&M manual ensures this.

Special Condition B.6 – Licensed Operator Requirement

Rationale: Required by VPDES Permit Regulation, 9VAC25-31-200 C and the Code of Virginia §54.1-2300 et seq, Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.), requires licensure of operators.

Special Condition B.7 – Best Management Practices

Rationale: VPDES Permit Regulation, 9VAC25-31-220 K, requires use of best management practices where applicable to control or abate the discharge of pollutants when numeric effluent limits are infeasible or the practices are necessary to achieve effluent limits or to carry out the purpose and intent of the Clean Water Act and State Water Control Law. Given the nature of the operations at this facility, this special condition reflects the best management practices associated with shipyard and vessel repair rather than the generalized best management plan condition. Conditions related to marine rail carriages have been removed as this does not apply to this facility. There are no graving docks at the site therefore, the shipyard condition Section IN-5, page 18 item a.(11) of the BMPs has not been included. Conditions 7.a.1.).a.(31) and (32) have been included to address specific site specific BMP needs.

Special Condition B.8– Reopeners

Rationale: 9VAC 25-40-70 A authorizes the DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards. Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

Special Condition B.9– Facility Closure

Rationale: Required by Code of Virginia §62.1-44.16. This condition is used to notify the owner of the need for a closure plan where a treatment works is being replaced or expected to close.

Special Condition B.10– Ground Water Monitoring and Corrective Action Plan

Rationale: State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. Ground water monitoring for parameters of concern will indicate whether possible lagoon seepage is resulting in violations to the State Water Control Board's Ground Water Standards.

Special Condition B.11– Water Quality Criteria Monitoring

Rationale: State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact to State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted.

Special Condition B.12 – Concept Engineering Report

Rationale: §62.1-44.16 of the Code of Virginia requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater. A CER means a document setting forth preliminary concepts or basic information for the design of industrial wastewater treatment facilities and the supporting calculations for sizing the treatment operations.

Special Condition B.13 – Outfall 002 Back-up Treatment

Rationale: State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. This condition is included to ensure the proper handling of process wastewater in the event that the storage ponds are needed to store untreated process wastewater.

Special Condition B.14 – Storage Ponds

Rationale: The permittee is proposing to eliminate the aerated ponds from the treatment train for evaporator condensate; however, they desire to leave the ponds in place to be used on an emergency basis if needed. A minimum free board requirement has been added to prevent the discharge of pollutants to surface waters.

Part I.C: Schedule of Compliance – Outfall 995

Rationale: 9 VAC 25-31-250 allows for schedules of compliance, when appropriate, which will lead to compliance with the Clean Water Act, the State Water Control Law and regulations promulgated under allows for them

Part I.D: Whole Effluent Toxicity Testing Requirements – Outfall 002

Rationale: VPDES Permit Regulation, 9VAC25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.

Part II Conditions Applicable to All Permits

Rationale: VPDES Permit Regulation, 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

21. **NPDES Permit Rating Work Sheet:** Total Score 60 (See Attachment 11)

22. Changes to the Permit:

2005 Permit Condition Num	2011 Permit Condition Num	Change
Permit Cover Page		Initial paragraph and signatory authority revised to reflect current agency guidance that incorporated the permit application as part of the permit.
Part I.A.1, 2,3,4,5	Removed	Outfall 001 eliminated.

Part I.A.6	Part I.A.1	Nutrient parameters [Total Nitrogen monthly average, monthly maximum, year to date, calendar year, TKN, Nitrate plus Nitrite, Total Phosphorous monthly maximum, year to date, calendar year, Orthophosphate] monitoring removed; superseded by the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.
		Fecal Coliform Limitation changed from 200 N/100 mL to 14 N/100 mL.
		Flow Monitoring Sample Type updated from "Measured" to "TIRE."
		Ammonia limitations changing from 38 mg/L (45 mg/L) to 32.6 mg/L (40.2 mg/L) due to reasonable potential analysis.
Part I.A.7	Part I.A.1.a	Renumbered.
Part I.A.8	Part I.A.1 Footnote 2	Renumbered.
Part I.A.9	Removed	Former Schedule of Compliance; Final limitations now effective.
Part I.A.10	Removed	Covered under General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.
Part I.A.11	Part I.A.1 Footnote 3	Monitoring Requirements moved to Part I.D Special Conditions; WET monitoring language updated to reflect current agency boilerplate in accordance with DEQ Central Office staff recommendations.
New	Part I.A.1 Footnote 4	Added in accordance with GM 07-2008 Amendment 2.
New	Part I.A.1 Footnote 1	Added to reflect GM 06-2016 regarding significant digits.
New	Part I.A.1.b	Added in accordance with GM10-2003 VPDES Permit Manual.
Part I.A.12, 13, 14, 15	Removed	Permit will no longer authorize discharge of condensate by barge via previously designated Outfall 003 to Chesapeake Bay.
Part I.A.16, 17, 18	Removed	This condition established combined limitations for Outfalls 001, 002, 003. With the elimination of Outfall 001 and discharges from Outfall 003 no longer being authorized under the VPDES permit, the combined limitations are no longer needed. Monitoring and limitations in this section have now been superseded by the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.
Part I.A.19	Part I.A.2	Inclusion of bacteria limitations for Fecal Coliform and Enterococci to demonstrate compliance with TMDL WLA
		Zinc monitoring removed
		Flow Monitoring Sample changed from "Estimated" to "Calculated."
Part I.A.20	Part I.A.2.a	Renumbered.
Part I.A.21	Removed	Former Schedule of Compliance for Copper and Silver complete. Limitations now effective.
Part I.A.22	Part I.A.2 Footnote 2	Renumbered
New	Part I.A.2 Footnote 3	Schedule of Compliance added for facility to take appropriate measures to demonstrate compliance with the bacterial TMDL.
New	Part I.A.2.b	Added in accordance with GM 10-2003 VPDES Permit Manual.
Part I.B.1	Part I.B.1	Compliance Reporting: Updated in accordance with GM10-2003 VPDES Permit Manual.
Part I.B.2	Removed	Chesapeake Bay Discharge Outfall 003: Permit will no longer authorize discharge of condensate by barge via previously designated Outfall 003 to Chesapeake Bay.
Part I.B.3	Part I.B.2	Discharge and Monitoring of Refrigeration Water: Revised language to include definition of refrigeration water and add monitoring of refrigeration water prior to discharge; correction of buoy description from black can buoy to green can buoy and light name from Fleeton Point

		Light to Great Wicomico River Light in accordance with NOAA navigational charts.
Part I.B.4	Removed	Cockrell Creek Ambient Water Quality Monitoring: Data review performed by staff was inconclusive. See Staff Comments for further discussion.
Part I.B.5	Removed	Bacterial Effluent Limitation Monitoring Requirements: Guidance on Bacterial Effluent monitoring no longer included in permits in accordance with GM 10-2003 VPDES Permit Manual.
Part I.B.6	Part I.B.3	Notification Levels: Renumbered.
Part I.B.7	Part I.B.4	Materials Handling/Storage: Updated in accordance with GM 10-2003 VPDES Permit Manual.
Part I.B.8	Part I.B.8.d	Reopeners: Renumbered.
Part I.B.9	Part I.B.5	Operations and Maintenance Manual Requirements: Updated in accordance with GM10-2003 VPDES Permit Manual.
Part I.B.10	Part I.B.6	Licensed Operator Requirement: Renumbered.
Part I.B.11	Removed	Form 2C Monitoring: Submitted on 7/10/2006.
Part I.B.12	Removed	Lagoon Salinity Profile: Submitted on 1/19/2006.
Part I.B.13	Removed	Submitted 6/21/06. Additionally the outfall has since been eliminated; therefore the condition is no longer applicable.
Part I.B.14	Part I.B.7	Best Management Practices: Updated in accordance with GM 10-2003 VPDES Permit Manual.
Part I.B.15	Removed	Boat Maintenance Ambient Water Quality Monitoring: Staff determined that monitoring plan for ambient water quality from boat maintenance activities is appropriate under the SW General Permit rather than the Individual Permit.
Part I.B.16	Removed	Schedule of Compliance (002 – Bacteria and Phosphorus; 995 – Copper and Silver): Complete. Limitations now in effect.
Part I.B.17	Removed	Oil Storage Ground Water Monitoring Reopener: Condition applies when groundwater monitoring is not included in the VPDES permit. Groundwater monitoring is included in this permit.
Part I.B.18	Part I.B.8	Reopeners: TMDL reopener is now included under a general reopener clause in accordance with GM 07-2008 Amendment 2.
Part I.B.19	Part I.B.8	Reopeners: Nutrient reopener is now included under a general reopener clause in accordance with GM 07-2008 Amendment 2.
Part I.B.20, 21, 22, 23	Removed	Nutrient Load Limitations and Monitoring Requirements: Superseded by the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia
Part I.B.24	Part I.B.11	Water Quality Criteria Monitoring: Revised to include Water Quality Criteria Monitoring for this permit issuance and submittal of Form 2C sampling
Part I.B.25	Part I.B.10	Ground Water Monitoring and Corrective Action Plan: Revised to reflect that plan exists and should be reviewed to ensure it is accurate. CAP language added.
New	Part I.B.9	Facility Closure: Added in accordance with GM10-2003; requirements included for freeboard maintenance since permittee intends to keep ponds on site for emergency storage.
New	Part I.B.12	Concept Engineering Report: Added in accordance with GM 07-2008 Amendment 2.
New	Part I.B.13	Back-up Treatment: This condition is included to ensure the proper handling of process wastewater in the event that the storage ponds are needed to store untreated process wastewater.
New	Part I.B.14	Storage Ponds: Included as a protective measure to prevent unauthorized discharge from storage pond.
Part I.C	Removed	Outfall 001 and 003 eliminated.
New	Part I.C.	Schedule of Compliance: Added for facility to take appropriate

		measures to demonstrate compliance with the bacterial TMDL at Outfall 995.
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23. **Variances/Alternate Limits or Conditions:** None

24. **Public Notice Information required by 9 VAC 25-31-280 B:**

All pertinent information is on file and may be inspected, and copied by contacting

Ms. Jaime Bauer
Virginia DEQ Piedmont Regional Office
949-A Cox Road
Glen Allen, VA 23060
Telephone No. (804) 527-5015
Email Address: Jaime.Bauer@deq.virginia.gov

DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual request for a public hearing, and there are substantial, disputed issues relevant to the permit. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment or may request copies of the documents from the contact permit listed above.

25. **Additional Comments:**

Previous Board Action: None

Staff Comments:

- As previously described, the fishing vessels take on seawater to be used as refrigeration water that is run through chillers to keep the fish cold until returning to the plant. The refrigeration water is discharged prior to the offloading of the fish. Discharges of refrigeration water must be performed outside of Cockrell Creek east of the line of Great Wicomico River Light and Green Can Buoy #3. At the June 27, 1982 State Water Control Board (SWCB) meeting agency staff made a presentation to the Board indicating the need to address refrigeration water under the VPDES program. Prior to the SWCB meeting, the Attorney General's Office deemed that the refrigeration water is process water, not harvesting water. Additionally, EPA did not address refrigeration water in the Effluent Guideline Limitations for Fish Meal Processing Facilities. EPA advised agency staff that limitations for the refrigeration water should be addressed based on Best Professional Judgment. In order to do this staff needed to characterize the discharge. However, no further documentation exists in the file showing the characterization of refrigeration water. In recent permit iterations, the permittee was required to monitor ambient water conditions prior to and after the discharge of refrigeration water to ensure that the discharge of refrigeration water does not contribute to the impairment of the receiving waters. This permit will continue to require weekly monitoring of ambient water quality as well as Water Quality Criteria Monitoring to be performed on the refrigeration water discharges at least one time during the term of this permit. Additionally, regular monitoring of select parameters is also required. The data collected from the monitoring of the refrigeration water will allow agency staff to determine if the discharge of refrigeration is impacting water quality in the Chesapeake Bay.

- Limitations and monitoring for storm water are required under the VPDES permit regulation, 9 VAC 25-31-

220A, and EPA's storm water effluent limitation guidelines in the Code of Federal Regulations at 40 CFR Part 429, Part 418, Part 443, Part 411, and Part 423. Storm water discharges exposed to industrial activities from the shipyards are regulated under general permit VAR051211 for the Reedville side; VAR051221 for the Fairport side. A barge operation to ship fishmeal by water also occurs at the facility. However, no discharge to state waters is being allowed from this activity. BMPs and Storm Water Pollution Prevention Plans are implemented through the storm water general permits to ensure no adverse discharge of pollutants to state waters occurs from the activity. It is suggested that the monitoring of the ambient water quality at the boat maintenance areas be incorporated into the sites' BMP and Storm Water Pollution Prevention Plans.

- During effluent limitation analysis and development for the December 2005 permit, the most recent 10 years of ambient water quality data rather than the period of record (1968 to 2003) was used in the calculation of the wasteload allocations for Outfall 001, 002, and 995 because the period of record was not believed to be representative of current ambient conditions. The permittee was required to establish an in-stream monitoring plan for Cockrell Creek (Special Condition Part I.B.4) to provide a complete and current record with which to determine compliance with the ammonia water quality standards. The plan included monthly monitoring for temperature, pH, salinity and ammonia at three locations 20 feet from Outfalls 001, 002, and 995 and was approved by the DEQ Piedmont Regional Office on January 13, 2006. As part of the 2011 permit reissuance, the ambient water quality data for Cockrell Creek was reviewed ([Attachment 12](#)). Staff has determined that the collected data is inconclusive as to the impact of the discharges of ammonia on the water quality of Cockrell Creek as it appears as though the data may have been collected within the regulatory approved mixing zone for each outfall. Additionally, review of the data collected at DEQ monitoring stations upstream and downstream of the discharge does not indicate any violations of the water quality standard for ammonia. Therefore, the in-stream monitoring plan is being discontinued.

- § 62.1-44.19:15. A. of the *Code of Virginia* requires owners or operators of expanded facilities to offset any increase in delivered total nitrogen and delivered total phosphorus loads resulting from any expansion beyond the waste load allocations or permitted design capacity as of July 1, 2005, and requires owners or operators of new facilities to offset the entire delivered total nitrogen and total phosphorus loads discharged. It is noted that for Outfall 002, the maximum 30 day flow increased from 0.249 MGD in the 2005 permit application to 0.265 MGD with the 2011 permit application. The increase is a result in the variability of production that occurs from industrial facilities. The long term average flow from Outfall 002 has decreased as the facility now reuses treated wastewater for various processes in the plant. There have been no activities at the plant that qualify as an expansion. Therefore, annual average nutrient concentration limitations are not being included in the permit.

- As previously explained in Item 9, the permittee is proposing to eliminate the use of the aerated ponds, DAF, and UV disinfection units from the Outfall 002 treatment train. The permittee is proposing to leave the ponds on site for emergency storage. The discharge of any water, including storm water, collected in the ponds and discharged through Outfall 002 must meet the limitations for Outfall 002 specified in Part I.A.1 of the permit.

EPA Comments:

VDH Comments: The permit application was sent to VDH in accordance with GM10-2003. VDH returned a memo acknowledging receipt of the application and indicating that there are no public water supply intakes located within 15 miles downstream of the discharges. No other comments were received.

Public Notice Comments:

Other Agency Comments:

Owner Comments:

Planning Conformance Statement: The discharge is in conformance with the existing planning documents for the area.

Have all applicable permit fees been paid? Yes

Is this project/discharge considered to be controversial? Yes. During the term of the 2005 permit as well as years prior, there has been significant interest from the public and nonprofit environmental groups regarding the permitted activities at this facility.

E-DMR Status: The facility has been enrolled in the eDMR program since May 2008.

Virginia Environmental Excellence Program (VEEP): This facility is not a participant in the VEEP program.

26. 303(d) Listed Segments (TMDL):

In the 2010 Water Quality Assessment the Cockrell Creek segments to which outfalls 002 and 995 discharge were assessed as Category 5D waters ("The Water Quality Standard is not attained where TMDLs for a pollutant(s) have been developed but one or more pollutants are still causing impairment requiring additional TMDL development.") The Aquatic Life Use is impaired due to inadequate SAV in the Chesapeake Bay 5 Mesohaline (CB5MH) estuary; estuarine bioassessments is an observed effect. The Fish Consumption Use is impaired due to the VDH Fish Consumption Advisory for PCBs and arsenic is an observed effect due to a screening value exceedance. The Recreation Use is impaired due to enterococci; the bacterial TMDL was approved by the EPA on 12/8/2008. The Wildlife Use is fully supporting. Lower Cockrell Creek to which outfall 002 discharges is impaired for the Shellfishing Use; the bacterial TMDL was approved on 12/8/2008. Previously, the segment of Cockrell Creek to which outfall 995 discharges was considered impaired for Shellfish Use; however, the Shellfish Use was removed for that segment because VDH considers the area to be administratively condemned.

The bacterial impairments on Cockrell Creek were addressed in a TMDL which was approved by the EPA on 12/8/2008 and by the SWCB on 4/28/2009. The TMDL states that "DEQ conducted a special study around the Omega Protein, Inc. facility from August 2006 to February 2007. Data collected from this study shows high bacteria counts in the waters surrounding the facility and from the industrial discharge. This data indicates the facility is a significant contributor to the bacterial impairments in Cockrell Creek." Outfall 002 was assigned a fecal coliform wasteload allocation of 2.55E+08 MPN/day and outfall 995 received a wasteload allocation of 7.52E+09 MPN/day to address the Shellfish Use impairment. The TMDL states that "effluents from the Omega facility must meet the shellfish water quality standard at the end of pipe." In addition, the outfalls received enterococci wasteload allocations of 6.37E+08 MPN/day and 1.88E+10 MPN/day, respectively, in order to address the Recreation Use impairment.

Compliance monitoring of Fecal Coliform and Enterococci discharged from Outfall 002 demonstrate compliance with wasteload allocations. Upon achievement of final limitations included in the Part I.A. page for Outfall 995 for Fecal Coliform and Enterococci, the permittee will also be able to demonstrate compliance with the wasteload allocations. Compliance with the allocations is demonstrated as follows based on the concentration limitations included in Part I.A of the permit and maximum flow data reported in Form 2C of the permit application:

Outfall	Max Flow (MGD)	Max Flow (mL/day)	Fecal Coliform			Enterococci		
			Concentration (MPN/100 mL)	Expected Loading (MPN/day)	TMDL WLA (MPN/day)	Concentration (MPN/100 mL)	Expected Loading (MPN/day)	TMDL WLA (MPN/day)
002	0.32	1,211,331,776	14	1.70E+08	2.55E+08	35	4.24E+08	6.37E+08
995	4.212	15,944,154,502	14	2.23E+09	7.52E+09	35	5.58E+09	1.88E+10

The Omega Protein facility was also included in the Chesapeake Bay TMDL which was approved by the EPA on 12/29/2010. The TMDL addressed all dissolved oxygen and SAV impairments in the Chesapeake Bay and its tidal tributaries. The facility received the following annual wasteload allocations:

- 21,213 lbs of total nitrogen
- 1,591 lbs of total phosphorus

- 352,836 lbs of total suspended solids

Compliance with the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed will result in the demonstration of compliance with the wasteload allocations for total nitrogen and total phosphorus in the Chesapeake Bay TMDL. Therefore, no limitations on total phosphorous and total nitrogen are necessary. Discussions with DEQ Central Office staff indicated that the TSS wasteload allocation assigned to the facility was based on TSS loading permit limitations from Outfall 001 (no longer in existence) and Outfall 002 only with the plant operating 198 days year due to the seasonal nature of the business, and are not based on the non-contact cooling water discharge. The load limitation in Outfall 002 ensures that the facility's discharge will not further contribute to impairment in Cockrell Creek.

Due to the nature of the operations of the fish processing plant, the facility is not expected to contribute PCBs or arsenic that may cause further water quality concerns.

See [Attachment 13](#) for the TMDL Fact Sheets.

27. **Nutrient requirements:** The permittee is considered a significant discharger of nutrients to the Chesapeake Bay watershed and is subject to the requirements of the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed. The Total Nitrogen and Total Phosphorus calendar year load limits associated with this facility are included in the current Registration List for the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Dischargers and Nutrient Trading in the Chesapeake Watershed in Virginia, under registration number VAN20037.

28. **Summary of Attachments**

1. Flow Frequency Memo
2. Facility Operations Diagram
3. Topographic Map
4. Ambient Monitoring Data for 7-COC001.61
5. 1976 VIMS Model for Cockrell Creek
6. Inspection Report
7. Effluent Limitation Development – Outfall 002
8. Effluent Limitation Development – Outfall 995
9. Whole Effluent Toxicity Testing Evaluation – Outfall 002
10. Ground Water Monitoring Data Evaluation
11. NPDES Permit Rating Spreadsheet
12. Cockrell Creek Ambient Monitoring Data
13. TMDL Fact Sheets

Attachment 1 – Flow Frequency Memo

Attachment 2 – Facility Operations Diagram

Attachment 3 – Topographic Map

Attachment 4 – Ambient Monitoring Data for 7-COC001.61

Attachment 5 – 1976 VIMS Model for Cockrell Creek

Attachment 6 – Inspection Report

Attachment 7 – Effluent Limitation Development – Outfall 002

Attachment 8 – Effluent Limitation Development – Outfall 995

Attachment 9 – Whole Effluent Toxicity Testing Evaluation –
Outfall 002

Attachment 10 – Ground Water Monitoring Data Evaluation

Attachment 11 – NPDES Permit Rating Spreadsheet

Attachment 12 – Cockrell Creek Ambient Water Quality Data

Attachment 13 - TMDL Fact Sheets